

History of the Lake Winnebago sturgeon fishery

Pre

1903 No harvest regulations.

1903 8 lb (3.6 kg) minimum size limit.

1913 14 May to 31 April open season, 20 lb (9.1 kg) round weight minimum size limit.

1915 First concern about overharvest of sturgeon stocks in Wisconsin. All sturgeon harvest on the Winnebago System is prohibited.

1932 First regulated spearing season on Lake Winnebago, January 1-March 1, 30" (76.2 cm) minimum size limit, 5 bag limit per person per season, tags \$.05 each, fishing license required.

Set line fishery opened on the Upriver Lakes, September 5 to October 31, 30" (76.2 cm) size limit, 5 bag limit per person per season (spear and set line fisheries combined), tags \$.05 each, set line license required.

1935 Wolf River hook and line season opened (Waupaca and Winnebago Counties), September 5 to October 31, no minimum size limit, 5 bag limit per person per season (spear, set line and hook & line combined), tags \$.05 each, fishing license required.

1937 Wolf River hook and line season expanded to include Shawano County.

1939 Hook and line season on Wolf River shortened by two weeks, September 5 to October 15

1940 Hook and line 30" (76.2 cm) minimum size limit initiated, and bag limit modified to allow only 1 fish per day. (maintaining 5 per season limit),

1941 Hook and line season closed on Wolf River.
Lake Winnebago spearing season reduced to one month, February 1 through March 1.

First significant assessment conducted on the sturgeon spearing harvest by Wisconsin Conservation Department Fisheries Biologists Edward "Doc" Schneeberger and Lowell Woodbury.

1944 Hook and Line season reopened on Wolf River but in Winnebago County only.

1946 Hook and line season opened on all portions of Wolf River (now including Outagamie County), retaining previous season length of September 5 to October 15, 30" (76.2 cm) size limit, bag limit of 5 per season, and \$.05 tags.

Late

1940's Wisconsin Conservation Department Fisheries Biologists Robert Probst, Edwin Cooper and Vern Hacker conduct first significant biological assessment on the Winnebago sturgeon population.

1940's Average annual sturgeon spear harvest through the 1940's: 691

1950 Hook and line, and spearing sturgeon tag fees increased to \$1.00 each.

1952 Set line season on Upriver Lakes closed.

"Experimental" spearing season conducted on the Upriver Lakes, 16 days February 15 through March 1, 30" (76.2 cm) minimum size limit, seasonal bag limit of three, (Lake Winnebago retained the Feb 1 – March 1 season and the bag limit of 5).

1953 Hook and line seasonal bag limit on Wolf River reduced to 3. Upriver Lakes spearing season reduced to 14 days.

Record sturgeon harvested on Lake Winnebago: 180 pound, 79" fish speared by Elroy Schroeder of Appleton.

Record sturgeon harvest (Winnebago and Upriver lakes combined) of 2828 fish taken during seasons of 29 days on Lake Winnebago and 14 days on the Upriver Lakes.

	First serious concern about overharvest of the sturgeon population since harvest ban enacted in 1915.		Hook and Line season on the Wolf River closed.
1954	Spearing seasonal bag limit on Lake Winnebago reduced to 3. First biological assessment conducted on the sturgeon spawning stock by WCD Fisheries Biologists Tom Wirth, Gordon Priegel and Clarence Cline (conducted annually until 1964).	1955-1959	First estimates of the number of "legal sized" sturgeon in the Winnebago System developed. Average abundance 1955-59, of legal sized sturgeon in the Winnebago population estimated to be 11,320.
1955	Minimum size limit for spear fishery (Lake Winnebago and Upriver Lakes) increased from 30" (76.2 cm) to 40" (101.6 cm). First year of mandatory registration of all sturgeon harvested in spear fishery (Lake Winnebago and Upriver Lakes); fish must be registered on same day speared by 6:00 pm.	1950's	Average annual sturgeon spear harvest through the 1950's: 1225
1956	Spearing, and hook and line seasonal bag limit reduced to 2 fish. Upriver Lakes spearing season reduced to 9 days. Lake Winnebago spearing season reduced to 2nd Saturday in February through March 1.	1960's	Beginning of a three decade period of persistent cloudy water in Lake Winnebago in most winters during the spearing season causing harvest rates to drastically decline from the rates experienced in the 1950's. (Cloudy water due to impact of accelerated run-off of non-point pollution and other changes occurring in the Winnebago Pool lakes).
1957	Spearing seasonal bag limit on the Upriver Lakes reduced to 1 fish (2 fish limit retained on Lake Winnebago). Upriver Lakes season length reduced to 5 days.	1960	Separate sturgeon spearing license is required at a cost of \$2.50; only persons age 14 and over could buy a spearing license, and persons age 16 and over were also required to possess a fishing license; a license could be purchased before, or at anytime during the spearing season.
1958	Spearing seasonal bag limit on Lake Winnebago reduced to 1 fish. Spear fishery closed on Upriver Lakes.	1962	Upriver Lakes new spearing season format implemented: 2 day season once every three years.
1959	Upriver Lakes spearing season reopened for one year for three days (On both Lake Winnebago and the Upriver Lakes at this point there was a 40" (101.6 cm) minimum size limit and a seasonal bag limit of 1).	1968	All transported sturgeon must be "openly exposed", i.e they must be visible in the transporting vehicle, to a person in a passing vehicle.
		1969	Winnebago spear fishery produces new record low harvest of 8 sturgeon over a 22 day season.
		1960's	Average annual sturgeon spear harvest through the 1960's: 590
		1971	Upriver Lakes spearing season format reconfigured again to a 2 day season once every five years.
		1974	Minimum size limit increased from 40" (101.6 cm) to 45" (114.3 cm).

- 1975 Dan Folz appointed by the Wisconsin DNR as Oshkosh Area Fisheries Supervisor and re-establishes annual assessments of spawning stock on the Wolf and upper Fox Rivers and spear harvest assessments on Lake Winnebago and Upriver Lakes (No assessments had been conducted from 1965 to 1974 except for total annual sturgeon harvest from mandatory registration.) Assessment work initiated in 1975 lays the foundation for future sturgeon management program.
- 1977 The “Main Chapter” of Sturgeon for Tomorrow formed by local sturgeon spearers under the leadership of Bill Casper, Dan Groeschl, Bob Blanck, Vic Schneider and Lloyd Lemke, based out of Malone, Wi, as a private sturgeon conservation organization to provide financial and political support for sturgeon management, artificial reproduction and other activities. “Sturgeon Patrol” initiated in the spring using volunteers (citizens, students, DNR staff, etc) to guard sturgeon spawning sites on the Wolf River 24 hours a day during the spawning period; funded by Sturgeon for Tomorrow.
- 1976-1979 Average abundance of “legal sized” portion of the Winnebago sturgeon population estimated to be 20,900 fish.
- First successful efforts to collect lake sturgeon eggs and propagate young sturgeon in North America conducted on the Wolf River, the DNR Wild Rose Fish Hatchery and at the University of Wisconsin-Milwaukee Center for Great Lakes Studies by Don Czeskleba (Wi DNR) and Fred Binkowski (UW-Milwaukee).
- 1970’s Significant increase in sturgeon spawning sites due to increased riprapping activity on the Wolf River by property owners attempting to protect their eroding shorelines from the wakes of increasing motorboat traffic on the river.
- 1970’s Average annual sturgeon spear harvest through the 1970’s: 596**
- 1980 Spearing license fee increased to \$5.50; license has to be purchased prior to season.
- “Southwest Chapter” of Sturgeon for Tomorrow formed under leadership of Fritz Wendt, Lee Patt, Glenn Ninneman, Mike Schrage, Mike Wendt and Jerry Dombaski, based out of Fond du Lac, Wi.
- 1982 First exceptionally large sturgeon spear harvest, 2238, to occur since the 1950’s.
- “Northern Half Chapter” of Sturgeon for Tomorrow formed under the leadership of Wayne Hoelzel, Bob Schroeder, Louie Hemauer, Tom Burr, Darlene and Bob Holmann, Donny Peterson, Steve Karow, Arnie Landsverk and Don Mielke, based out of Appleton, Wi.
- 1983 Spearing license fee increased to \$7.10.
- 1981-1983 Average abundance of “legal sized” portion of the Winnebago sturgeon population estimated to be 31,133 fish.
- 1985 \$1,500 minimum fine established for possession of illegal sturgeon.
- 1986 Sturgeon registration hours extended to 7:00 pm during the spearing season.
- In response to loss of habitat, poor water quality, and other fish and wildlife resource issues on the Winnebago System, the Department of Natural Resources initiates project to develop and implement long term plan for comprehensive management and balanced use of Winnebago fish, wildlife and water resources. Ron Bruch is appointed as the Winnebago System Biologist to facilitate development and implementation of this plan.
- 1988 “West Central Chapter” of Sturgeon for Tomorrow formed under the leadership of Dick and Pat Braasch, Jim Jensen, Donny Payne, Ron Harrison, Ron Jungwirth, Jim Gibson, Bruce Schoenberger, and Bill McAloon, based out of Oshkosh, Wi.

Fish migration barrier is installed at Rapid Croche dam on the lower Fox River and the locks at the dam are closed and sealed to protect Winnebago fish populations from sea lamprey (and other exotic species) threatening invasion from Green Bay.

1989 “Winnebago Comprehensive Management Plan” is completed and implemented. Implementation of sweeping actions begins immediately addressing habitat and water quality issues in the Winnebago Pool Lakes to improve Winnebago water quality and clarity. Plan addresses wide range of fish and wildlife resource use issues, recommends a fishway be constructed at the Eureka Dam on the upper Fox River to allow sturgeon, walleye and other species access to upstream traditional spawning and nursery grounds, and recommends continuing protection and development of sturgeon spawning sites on the Wolf and upper Fox Rivers.

1989 Eureka Fishway is constructed at the Eureka Dam on the upper Fox River.

1980's Riprapping projects on Wolf and upper Fox Rivers expands number of sturgeon spawning sites from approximately 20 sites to 50 sites by the end of the decade.

1980's Average annual sturgeon spear harvest through the 1980's: 679

1990 Spear harvest of 2908 sturgeon during a 20 day season raises serious concerns about overharvest of the stock.

Ron Bruch appointed to fill the Oshkosh Area Fisheries Supervisor position following the retirement of Dan Folz. Art Techlow hired as new Winnebago System Biologist to replace Bruch and continue driving implementation of the Winnebago Comprehensive Management Plan.

Lake sturgeon utilize the newly constructed fishway at Eureka dam on the upper Fox River for upstream migration to historic spawning sites and as a new spawning site.

Gizzard shad population explodes in the Winnebago System. *[Gizzard shad, an excellent forage fish, had been found in Winnebago System waters for decades but warm winters in the late 1980's are suspected to have allowed shad numbers to increase exponentially between 1988-1990. Shad experience a winter die off in Lake Winnebago and concentrate in the southern part of Lake Winnebago as well as in the Upriver Lakes. Sturgeon readily adapted to utilizing dead and dying shad as a forage item with many sturgeon sampled in the spear harvest found to have 2 gallons or more of shad in their foreguts.]*

1991 Expanded harvest and population assessments are initiated on Lake Winnebago, the Upriver Lakes and the Wolf and upper Fox Rivers. Harvested fish are checked for sex and maturity in addition to traditional length and weight measurements. New harvest assessment data show adult females were harvested in 1990 at a rate of 19.5% - four times the recommended level of 5%.

Adult female sturgeon comprise 46% of all harvested fish. High minimum size limit of 45" enacted in 1974 suspected cause of the high proportion of adult female sturgeon in the harvest.

Harvest data also show the proportion of sturgeon > 100 lbs (all adult females) in the harvest is significantly lower (5x) than the proportion observed in annual harvests from 1950-1985.

1992 Sturgeon spearing license fee increased to \$10.00. Winnebago Citizens Sturgeon Advisory Committee, comprised of representatives of 30 sturgeon spearing and conservation organizations from the Winnebago region, established to work with DNR fisheries and law enforcement staff in the development and implementation of regulations and management actions.

1992-1993 Construction of “Eureka Rapids” at the Eureka Dam on the upper Fox River. Project led by Walleyes for Tomorrow with substantial financial support from Sturgeon for Tomorrow provides in-river

	spawning and nursery habitat for sturgeon, walleye and a wide range of other fish species.		
1993	Angling through a sturgeon spearing ice hole prohibited (due to serious illegal hooking problems during the 1992 spearing season).		
	Sturgeon harvest of 1643 fish through 17 day season. Adult females still comprise nearly half of the harvest.		
1990-1994	Average annual abundance of adult female sturgeon in the Winnebago stock estimated to be 10523 fish. Average abundance of adult males estimated to be 25288.		
1995	New record season harvest total of 3173 sturgeon registered in a 19 day season. Serious concerns about overharvest of adult females prompts discussions about major changes in Winnebago sturgeon spearing regulations.		
1996	Emergency rule reduces Lake Winnebago spearing season to nine days with the possibility of extension if the average water clarity on the 3 rd day of the season is less than 10 feet (Average water clarity was >12 ft, therefore the season ran only nine days).		
By 1997	Clear water in Lake Winnebago in the winter is becoming the norm as opposed to a once a decade phenomena resulting in significant increases in spear harvest success and increases in spearing effort. <i>(Thought to be due, at least in part, to sweeping non-point and point pollution controls implemented following the completion of the Winnebago Comprehensive Management Plan.)</i>		
1997	Series of new rules went into effect as the 1st phase of developing a new Safe Harvest Management System for Winnebago sturgeon: <ul style="list-style-type: none"> • The Lake Winnebago spearing season length is reduced to 16 days, beginning the second Saturday in February (no change in the Upriver Lakes season format); • The minimum size limit is reduced from 45" to 36" (91.4 cm); • Successful spearers are required to accompany their fish to a registration station, and to stay within a specific road boundary around the lake until their fish is registered; • The covering of large ice holes (spearing holes) with shanties is prohibited during periods other than 48 hours before and continuing through the open spearing season; • Hours of sturgeon spear harvest registration are reduced by one hour to close at 6:00 pm. 		
1998	2051 fish harvested through a 12 day season. Season was cut short after ice went out early on Lake Winnebago on February 26.		
	Sturgeon for Tomorrow and Otter Street Fishing Club purchase and donate to DNR Fisheries, Oshkosh, state of the art \$30,000 electrofishing boat to assist with sturgeon population assessments on the Winnebago System.		
	First zebra mussels (exotic mussel originally from the Caspian Sea) found in Winnebago System waters on a buoy marking one of the outlet channels from Lake Winnebago at Neenah-Menasha.		
1999	Harvest cap system instituted via emergency rule to manage the Winnebago System sturgeon spear harvest. Under the rule, the season is closed 24 hours after reaching 80% of the total allowable annual harvest of adult females, juvenile females or males. Cap levels set at 400 for adult females, 400 for juvenile females and 2150 for males.		
	Lake Winnebago spearing season lasts just three days and produces a sturgeon harvest of 1484 fish.		
	"Night spearing" with lights starting at midnight gains popularity with spearers attempting to maximize their spearing time in the "race horse" harvest cap fishery.		

1995-1999 Average annual abundance of adult female sturgeon in the Winnebago stock estimated to be 6840 fish. Average abundance of adult males estimated to be 40296.

1990's Average annual sturgeon spear harvest through the 1990's: 1583

2000 Harvest cap system instituted via permanent rule to manage the Winnebago System sturgeon spear harvest. Under the rule, the season is closed 24 hours after reaching 80% of the total allowable annual harvest of adult females, juvenile females or males. Cap levels set at 400 for adult females, 400 for juvenile females and 2150 for males.

Two day spearing season on Upriver Lakes (held one year early to allow collection of vital population data) produces 2169 sturgeon – a new record for the Upriver Lakes fishery and the first time since the 1950's the Upriver Lakes harvest resulted in overharvest problems.

Spearing season on Lake Winnebago lasted just two days and produced a harvest of 347 fish.

2001 Two day season (due to the harvest cap controls) results in harvest of 1590 sturgeon.

2002 Emergency rule passed reducing sturgeon spearing hours to 6:30 am to 12:30 pm. Spearers had until 1:30 pm to register their fish the same day it was speared.

Permanent rule changes approved for the 2002 season:

- No night spearing- "unlawful to use any artificial lights as an aid in sturgeon spearing"
- Hole or holes size per shanty are limited to no more than 48 square feet – spearers are allowed to have more than one hole per shanty or shelter no matter how big the shelter is, but the total area of all the holes in that one shelter can not exceed 48 square feet.

Shortened spearing day, along with poor ice conditions and only fair water clarity, resulted in a full 16 day season and a total harvest of 847 fish.

“Upper Fox River Sturgeon Rehabilitation Project” launched by Wisconsin DNR, University of Wisconsin-Milwaukee Great lakes WATER Institute and Sturgeon for Tomorrow – a 25 year project with the goal of increasing the productivity of the sturgeon spawning run in the upper Fox River through habitat improvement, stocking and sturgeon migration studies.

Sturgeon for Tomorrow “Main Chapter” celebrates its 25th Anniversary.

Zebra mussel population peaks in Lake Winnebago Pool Lakes.

Lake fly hatches much diminished in Lake Winnebago.

2003 Permanent rule passed reducing sturgeon spearing hours to 6:30 am to 12:30 pm. Spearers had until 1:30 pm to register their fish the same day it was speared.

The Winnebago Citizens Sturgeon Advisory Committee worked with Senator Carol Roessler (Oshkosh) and Representative Dean Kaufert (Neenah) to pass new state statutes which:

- Required spearers to buy their sturgeon spearing license by October 31 in order to participate in the following February's Winnebago sturgeon spearing season. An exception was included for Wisconsin residents who turned 14 between November 1 and the last day of the following spearing season, and for Wisconsin residents serving in the Armed Forces and home on leave during the following spearing season.
- Increased the sturgeon spearing license fee from \$10 to \$20 for Wisconsin residents and to \$50 for non-residents.
- Removed the sturgeon spearing tag from the Conservation Patron license.

- Eliminated the requirement that a spearer first purchase a fishing license before they were allowed to purchase a sturgeon spearing license.
- Required that all the sturgeon spearing license revenues be used only to fund the Winnebago Sturgeon Management Program.

Shortened spearing day, along with terrible ice conditions and fair water clarity, resulted in a 10 day season in 2003 and a total harvest of 902 fish. Ice on the south end of Lake Winnebago (an area which experienced extremely high spear harvest rates since the late 1990's) went out before the end of the spearing season.

By
2004

Estimated exploitation rates of adult female sturgeon in the Winnebago system reduced and sustained at annual levels close to recommended 5% from levels near 20% experienced in early to mid 1990's.

Proportion of sturgeon > 100 lbs in the harvest increasing – close to historic levels seen prior to 1985

Average annual abundance of adult female sturgeon in the Winnebago stock estimated to be 10987 fish. Average abundance of adult males estimated to be 41588.

2004

First year that the Conservation Patron tag did not include a sturgeon spearing tag. 8798 resident and 114 non-resident sturgeon spearing licenses sold for the 2004 season.

Harvest caps increased to 425 for adult females and 425 for juvenile females, and reduced to 1300 for males.

High concentrations of sturgeon in the south end of Lake Winnebago draw large numbers of spearers resulting in an extremely high harvest rate, a short two day season and a total harvest of 1854 fish. 89% of the harvest is taken from the southern 14% of the lake area.

The highest one-day harvest of sturgeon ever – 1,303 on opening day
The shortest season ever, lasting just 12 hours (6 hours each day)

Harvest cap for adult females is exceeded by 61%.

Opening Day Shanty Count of 4751

Total license sales of 8924 (8810 resident, 114 non-resident)

20 fish larger than or equal to 100 pounds were registered (1.1% of the total harvest)

24 females with black eggs harvested (3.5% of the adult females harvested; 1.3% of total harvest). [*“Black egg” females are adult females with fully developed ovaries ready to spawn and lay their eggs in the coming spring. Adult female lake sturgeon in the Winnebago System typically spawn once every 3 to 5 years so on average about 25% of the adult female lake sturgeon in the Winnebago System are black egg fish each year*].

Largest fish ever registered in the history of the 73 years of sturgeon spear fishing on Lake Winnebago: 188 pounds, 79.5 inches in total length, registered by David Piechowski of Redgranite.

Estimated exploitation rates (% of the total system-wide population harvested) were 4.8% for adult females, and 3.3% for males [*although estimate for adult females is considered somewhat unreliable as it was based on only 3 tag returns*].

Winnebago Citizens Sturgeon Advisory Committee, DNR staff and the general public, out of concern over short 2004 season and potential for overharvest in future seasons, initiate discussions on harvest and effort management alternatives to maintain acceptable harvests, maintain the open fishery, while at the same time significantly extending the length of the spearing season.

Alternatives suggested by the public and under consideration include creating an Intensive Zone Fishery (partial lottery) in the southern tip of Lake Winnebago and on the Upriver Lakes; creating a refuge in the southern tip of Lake Winnebago and/or on the Upriver Lakes; creating an Intensive Zone Fishery (partial lottery) within a specific depth of Lake Winnebago; creating a refuge within a specific depth of Lake Winnebago.

Zebra mussel population found to be significantly reduced from levels observed in 2003. Sturgeon (as well as drum, carp, perch and other species found to be feeding on zebra mussels).

Few lake fly larvae found in sturgeon stomachs during the spearing season. Poor to no lake fly hatch observed in May although small but significant hatch observed in August. Sturgeon sampled in August – October found to be foraging heavily on lake fly larvae.

2005 Permanent rule implemented limiting the 2005 Upriver Lakes spearing season to one day (6:30 am to 12:30 pm) in an effort to avoid over harvest as was experienced there in the 2000 season.

Emergency rule passed giving the Department of Natural Resources the authority to close the spearing season at the end of a spearing day if 100% of one of the three harvest caps (adult females, juvenile females, males) is exceeded that day. Former permanent harvest cap trigger still remains in force – season would close 24 hours after harvest total reaches 80-99% of any one of the three caps by the end of a fishing day.

Spearers are required to purchase either a spearing license for Lake Winnebago or the Upriver Lakes. For the first time spearers are not be able to fish both water bodies in the same season. A total of 10,634 sturgeon spearing licenses sold for the 2005 season – 6465 for Lake Winnebago, and 4169 for the Upriver Lakes.

Winnebago Citizens Sturgeon Advisory Committee, DNR staff and the general public meet following the 2005 spearing season to develop a final recommendation by March 31, 2005 for future spearing seasons.

Sturgeon for Tomorrow “Southwest Chapter” celebrates its 25th Anniversary. Contributions of all chapters to date towards sturgeon management and research activities totals \$576,670.

2000-

2004

Average annual sturgeon spear harvest 2000-04: 1542